

### REMARKS/ARGUMENTS

The Applicant has carefully considered this application in connection with the Examiner's Action and respectfully requests reconsideration of this application in view of the foregoing amendments and the following remarks. The Applicant originally submitted Claims 1-20 in the application. In a preliminary amendment, Claims 1-20 were cancelled, and new Claims 21-41 were added. Claim 35 has been amended to further clarify one embodiment of the present invention for reasons not related to patentability, and no claims have been cancelled or added. Accordingly Claims 21-41 are currently pending in the present application.

#### **I. Formal Matters**

The changes made to the paragraphs set forth above regarding the changes in the loss value of a lossy PCB from "about 0.04" to "about 0.02" do not constitute new matter because these values are inherent to the type of board set forth in the application as originally filed. More specifically, support for this change is found in paragraph [0016], in which FR-4 PCB is cited as exemplary of the substrate that is typical of those on which the invention would be applied to. The value of 0.04 was inadvertently used in the original specification, whereas the correct loss value cited for FR-4 PCB in the open literature ranges from about 0.02 and higher, depending on the frequency. Because the loss is an inherent property of the FR-4 PCB, the Applicant respectfully submits that this change of value does not constitute new matter pursuant to MPEP § 2163.07(a).

Claim 33 was objected to by the Examiner as being dependent upon a rejected claim, but asserted to be allowable if rewritten in independent form including all the limitations of the base claim and all intervening claims. The Applicant respectfully submits, with reasoning presented

below, that the independent claim and intervening claims that Claim 33 depends from are allowable. Therefore, Claim 33 is submitted without amendment.

## **II. Rejections of Claims 21-22, 28-29, and 36-37 Under 35 U.S.C. §102(b)**

The Examiner has rejected Claims 21-22, 28-29, and 36-37 under 35 U.S.C. §102(b), as being anticipated by U.S. Patent number 4,873,529 to Gibson (Gibson). The Applicant respectfully submits that Gibson is not a valid anticipatory reference because Gibson fails to recite each and every element of the presently claimed inventions. The Examiner asserts that Gibson teaches an insulation region extending through the substrate. The presently claimed inventions recite that the antenna trace is formed on the substrate and that an insulation region extends through the substrate. In contrast to this, Figure 2 of Gibson clearly shows that the insulation region (4) extends only through the ground plane (3) and does not extend through the substrate (1).

Accordingly, Gibson fails to teach each and every element of the claimed inventions, and as such, is not a valid anticipatory reference. Therefore, the Applicant respectfully requests that the Examiner remove the rejection of claims 21-22, 28-29, and 36-37 under 35 U.S.C. §102(b).

## **III. Rejections of Claims 23-27, 30-32, 34 and 38-41 Under 35 U.S.C. §103(a)**

The Examiner has rejected Claims 23-27, 30-32, 34 and 38-41 under 35 U.S.C. §103(a) as being unpatentable over Gibson in view of U.S. Patent No. 6,424,317 to Rudish (Rudish). The Applicant respectfully submits that the claimed inventions are not obvious in view of the foregoing combined references, and that various combinations of these references fail to establish a *prima facie* case of obviousness of Claims 23-27, 30-32, 34 and 38-41. Gibson discloses a coplanar patch

antenna and ground plane, with means for feeding electrical signals to the antenna comprising a slot line formed in the ground plane. It is well known to those skilled in the art that slot line devices are constructed in such a way to result in radio-frequency signal paths with a well defined path impedance. Inserting the insulation regions along the path impedance as taught by Ruddish would cause signal reflections, which would result in degradation of signal fidelity. Those skilled in the art would deem such reflections to be undesirable, and as such, would not be motivated to add those discontinuities that would be present if Rudish's teaching were combined with Gibson's teaching. Therefore, there is no motivation to combine the references as suggested by the Examiner, and as such, the combination is improper. Accordingly, the asserted combination fails to sustain a *prima facie* case of obviousness.

#### IV. Rejections of Claim 35 Under 35 U.S.C. §103(a)

The Examiner has rejected Claim 35 under 35 U.S.C. §103(a) as being unpatentable over Gibson in view of U.S. Patent No. 6,204,814 to Rothe (Rothe). The Applicant respectfully submits that the claimed invention is not obvious in view of the foregoing combined references, and that various combinations of these references fail to establish a *prima facie* case of obviousness of Claim 35. As discussed above, Gibson fails to teach an insulation region extending through the substrate. In addition, Gibson fails to suggest any such element for the reasons discussed above with respect to Gibson. Rothe does not cure the deficiencies of Gibson in that Rothe merely teaches the use of a via as a signal path for the radio-frequency energy, which is fundamentally incompatible with the mode of signal propagation in slot line design. Therefore, one skilled in the art would not combine Gibson's antenna with Rothe's via. Furthermore, Gibson fails to teach or suggest the use of a via

to connect between antenna traces on opposite sides of the substrate. As there is no teaching, suggestion or motivation to combine these references, the combination of Gibson and Rothe fails to sustain a *prima facie* case of obviousness.

Furthermore, even if the references were properly combined, they would not teach or suggest each and every element, because the combination does not teach or suggest an insulation region that extends through the substrate.

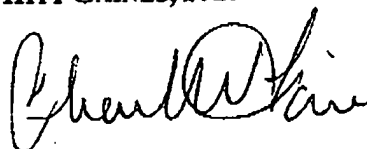
#### V. Conclusion

In view of the foregoing amendment and remarks, the Applicant now sees all of the Claims currently pending in this application to be in condition for allowance and therefore earnestly solicits a Notice of Allowance for Claims 21-41.

The Applicant requests the Examiner to telephone the undersigned attorney of record at (972) 480-8800 if such would further or expedite the prosecution of the present application.

Respectfully submitted,

HITT GAINES, P.C.



Charles W. Gaines  
Registration No. 36,804

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P.O. Box 832570  
Richardson, Texas 75083  
(972) 480-8800